

UDC 69.003: 658.157: 330.33.01

**DEVELOPMENT OF MODERN TOOLS AND SOFTWARE
PRODUCTS FOR INNOVATIVE PROVISIONING SERVICES FOR THE
CONSTRUCTION INDUSTRY****PhD in Economical Sciences, Malykhyna O.****postgraduate student, Lugyna T., postgraduate student, Koval T.****Kiev National University of Construction and Architecture, Ukraine, Kiev**

In order to improve the analysis and eliminate the disadvantages of functionally-developed special-purpose management systems by enterprises, which include innovation provision, it is necessary to create and develop a functional subsystem of analytical processing of information in them. The creation of such a subsystem comes from: the independent role of economic analysis and diagnostics in the management process; system approach to this function; is confirmed by the practice of development of functionally developed systems of special purpose management by producers, which showed local formation and implementation of partial analytical tasks is not able to provide an improvement in the formulation of analysis.

Key words: innovation, innovative potential; construction enterprises; investment project, enterprise strategy, organizational structure.

кандидат економічних наук, Малихіна О. М., аспірант, Лугина Т. С., аспірант, Коваль Т. С. Розробка сучасних інструментів та програмних продуктів інноваційного провайдингу для підприємств будівельної галузі / Київський національний університет будівництва і архітектури, Україна, Київ

З метою поліпшення аналізу та усунення недоліків функціонально розвинутих систем управління спеціального призначення підприємствами, до яких відноситься інноваційний провайдинг, представляються необхідними створення і розвиток в них функціональної підсистеми аналітичної обробки інформації. Створення такої підсистеми виходить із: самостійної ролі економічного аналізу та діагностики в процесі управління; системного підходу до цієї функції; підтверджується практикою розвитку функціонально розвинутих систем управління спеціального призначення продуцентами, що показала, локальне формування та впровадження часткових аналітичних завдань не спроможне забезпечити здійснене поліпшення постановки аналізу.

Ключові слова: інновація, інноваційний потенціал; будівельні підприємства; інвестиційний проект, стратегія підприємства, організаційна структура.

кандидат экономических наук, Малихина О. М., аспирант, Лугина Т. С., аспирант, Коваль Т. С. Разработка современных

инструментов и программных продуктов инновационного провайдинга для предприятий строительной отрасли / Киевский национальный университет строительства и архитектуры, Украина, Киев

С целью улучшения анализа и устранения недостатков функционально-развитых систем управления специального назначения предприятиями, к которым относится инновационный провайдинг, представляется необходимым создание и развитие в них функциональной подсистемы аналитической обработки информации. Создание такой подсистемы выходит из: самостоятельной роли экономического анализа и диагностики в процессе управления; системного подхода к этой функции; подтверждается практикой развития функционально-развитых систем управления специального назначения продуцентами, показывая, что локальное формирование и внедрение частных аналитических задач не способно обеспечить совершенствование и улучшение постановки анализа.

Ключевые слова: инновация, инновационный потенциал; строительные предприятия; инвестиционный проект, стратегия предприятия, организационная структура.

Introduction. The modern stage of functioning of the Ukrainian economy, characterized by the volatility of the external environment, increased competition, accelerated technology development, rapid growth in production and consumption, forms new demands for management systems and requires understanding the characteristics of the modern world and maximizing their full consideration. A mandatory requirement for the successful existence of enterprises is the availability of an effective management system that meets the conditions of uncertainty and is constantly adapting to them.

One of the reasons for the weak implementation of modern technologies in domestic practice is the lack of awareness of their features and advantages, as well as the lack of methodical tools for its implementation. Therefore, the theoretical coverage of the main approaches of innovation management, their careful analysis in comparison with traditional, as well as the development of methodological recommendations for practical implementation in order to form an innovative enterprise management system that will be flexible and effective in conditions of uncertainty of the economy.

Cost management includes project monitoring activities, resource planning, cost estimates, cost estimates and cost control. Cost management is based on the project cost accounting system, the accounting system for asset accounting, debt, liability, tax payment, depreciation charge, material flow, procurement and sales, expected and

real profits [1-3]. The cost factor is decisive both during the planning and implementation of the project, and at the stage of evaluation of its results. In today's crisis conditions, project cost management includes not only the tasks and procedures for the formation, control and execution of the approved project budget [4-6], but also constitutes a limitation of all project activities. The tendency of a ban in excess of the budget is increasing in any case, under any circumstances. Therefore, the project cost management concept begins to dominate other areas of knowledge and integrates strategic decisions that ensure the project is completed successfully. Project cost management includes processes that are required to maintain within the budget. The formation of the same budget is mainly focused on the cost of the resources needed to carry out works in the project, the calculation of the duration of these works, and the definition of the risks that will affect these indicators. Given the limitations on the impossibility of exceeding the budget, the decision-making space in such projects will also be limited. In addition, the emphasis can be changed on the cost management of complex organizational and technical systems [7].

The purpose of the article is to develop tools for information and analytical support for managing the process of making investment decisions. Proposed: multifunctional informational-analytical automated security; calendar of investment barriers; method of integration of budgeting systems; methodology of sales management (in housing construction); system of control of the investment project

Presenting main material. Innovative provider as in the system of process - oriented management of a construction enterprise has a strategic character and is based on the relevant principles:

- Subordination of the strategic objectives of the investment strategy to the strategic goals of innovation development.
- Variability and flexibility in relation to changes in the environment.
- Conformity of the investment strategy to the existing investment climate, directions of state regulation of innovation and investment processes taking into account development prospects.
- Parallel development of marketing and investment strategies for innovation development.
- The level of risk of investment decisions is taken.
- Sufficiency of investment resources for implementation of innovative development projects.
- Investment efficiency.

Typical factors influencing the process of making investment decisions in accordance with their theoretical generalization and degree of influence are determined: a) economics and management - the availability of certified ISO methods; availability of techniques for taking into account the stages of the life cycle; free access to external sources of investment;

seasonality of demand, raw materials, production; transition to serial construction; change of profit centers; deviation of actual indicators from planned ones; b) socio-psychological - emotional factors of the founder of the investment project and the investor; c) information - availability of information support system; Real-time project tracking of project dynamics; availability of software and control automation; d) external - the stability of the national currency; environmental friendliness; Requirements for project documentation structure and their cyclical change.

The analysis and evaluation of the financial activity of an enterprise is a diagnosis of its financial status, which allows to identify deficiencies and failures, identify and mobilize domestic economic reserves, increase revenues and profits, reduce production costs, increase profitability, improve the financial and economic activity of the enterprise as a whole. The method of multidimensional comparisons has become widespread in the economy of the enterprise, in particular in summarizing the work, evaluating the implementation of the plan, analyzing the financial condition of economic entities and their subdivisions. The application of this method is related to the complexity of the investigated economic phenomena and processes, their many-sidedness and ambiguity. In such conditions, it is not possible to give a complete assessment of these phenomena using one indicator. Therefore, a system of various indicators is used that need to be systematized and analyzed for rational management decisions.

It is taxonomic methods that have a powerful arsenal of systematization algorithms and are designed to solve this problem. When constructing a taxonomic index, a matrix of data is compiled from standardized attributes. Standardization allows you to get rid of the unit of measurement - both in value and in kind. To calculate the integral index of the financial state of the enterprise to the system of indicators should include the following: the share of costs in the proceeds from the sale; absolute liquidity ratio; coefficient of autonomy; coefficient of profitability of sold products; return on equity ratio; coefficient of return on equity; coefficient of financial dependence; coefficient of profitability of the main activity; operating profitability ratio; return on equity of working assets and net profit. An assessment of the financial condition of an enterprise using taxonomic analysis enables to monitor financial activity and determine an integral indicator of the level of financial condition of an enterprise. The proposed study provides an opportunity to obtain a fairly complete and unbiased information about such a state and the possible dynamics of the degree of influence of risks at all stages of the development company.

An analysis of modern software solutions for decision support has found that the creation of effective systems of support and decision making for management of significant social projects of social purpose requires an effective combination of well-proven in the field of organization of the construction of formal analytical methods and models (calendar

network models, statistical, stochastic, factor- analytical and investment analysis) with the benefits of subjective-computer methods that enable managers and recipients the decision to create a more realistic system-process model for the needs of organization of construction projects and to form the most visible and reliable model of organization of construction.

As the software environment of the created software, the MS Excel spreadsheet space has been adopted that will provide the user with the ease of use of the software product, visibility in the choice of alternatives to organizational and technological solutions and the ability to adapt to the needs of a specific construction project and the needs of both the investor, the customer and the leading executor of construction projects .

Conclusions. In terms of the effectiveness of the innovation process, the most significant is the stage of distribution, the so-called technology transfer. At this stage of the innovation process, the implementation of beneficial effects of innovation takes place, which determines the timely recoupment of the cost of innovation, the effectiveness of innovation proving in general.

At the enterprises of the construction industry, due to its specificity, the process of transfer of innovative technologies can be presented as a two-vector model. Diffusion of innovations takes place in two directions: horizontally and vertically. According to the vertical vector, the distribution of innovations in organizations that produce the same type of products or provide specialized types of work or services. The horizontal vector is the emergence and development of innovations in the integrated structures in accordance with the technological sequence of construction processes.

Література:

1. Бушусєв С. Д. Системна інтеграція підходів в управлінні будівельними проектами / С. Д. Бушусєв, О. О. Бойко // *Управління розвитком складних систем.* – 2016. – Вип. 26. – С. 43-48.
2. Гайда, А. Ю. Механизмы эффективного управления проектами в организационных системах с нечетко выраженными состояниями / А. Ю. Гайда, Т. А. Фаруонова, М. В. Ворона // *Управління розвитком складних систем.* – 2016. – № 28. – С. 116 – 122.
3. Нечепуренко Д. С. Систематизація організаційно-технологічних факторів, які впливають на тривалість та вартість реалізації енергозберігаючих проектів комплексної реконструкції житлової забудови [Електронний ресурс] / Д. С. Нечепуренко // *Строительство. Материаловедение. Машиностроение. Серия: Стародубовские чтения.* – 2014. – Вып. 74. – С. 120-126. – Режим доступа: http://nbuv.gov.ua/UJRN/smmsc_2014_74_25
4. Поколенко В. О. Запровадження інструментарію вибору альтернатив реалізації будівельних проектів за функціонально-технічною надійністю організацій-виконавців / В. О. Поколенко, Г. М.

Рижакова, Д. О. Приходько // Управління розвитком складних систем. – 2014. – Вип. 19. – С.104-108.

5. Августин Г., Баратта А., Кашиати Ф. Вероятностные методы в строительном проектировании. – М.: Стройиздат, 1988. – 584 с.

6. Чернишев Д. О. Застосування Wavelet-аналізу як прикладного інструментарію вияву та подолання невизначеності в проектах біосферосумісного будівництва / Д. О. Чернишев // Управління розвитком складних систем. – 2017. – № 31. – С. 196 – 201.

References:

1. Bushuyev S. D., Bojko O. O. (2016). System integration of approaches in the management of construction projects. *Management of the development of complex systems*, 26, 43–48.

2. Gayda Anatoliy, Farionova Tatyana & Vorona Mihail. (2016). Mechanisms for effective project management in organizational systems with fuzzy conditions. *Management of Development of Complex Systems*, 28, 116–122.

3. Nechepurenko, D. S. (2014). Systematization of organizational and technological factors influencing the duration and cost of implementation of energy saving projects of complex reconstruction of residential development [Electronic resource]. *Building. Materials Science. Mechanical engineering. Series: Starodubov Readings*, 74, 120–126. Access mode: http://nbuv.gov.ua/UJRN/smmssc_2014_74_25

4. Pokolenko V. O., Ry`zhakova, G. M., Pry`xod`ko D. O. (2014). Implementation of tools for choosing alternatives for implementing construction projects according to the functional and technical reliability of implementing organizations. *Management of the development of complex systems*, 19, 104–108.

5. Avgusti G., Baratta A., Kashiati F. (1988). *Probabilistic methods in construction design*. Moscow: Stroyizdat, 584.

6. Chernyshev Denys. (2017). Application of wavelet-analysis as applied tools of identification and overcoming uncertainty in projects of biosphere-compatible construction. *Management of development of complex system*, 31, 196 – 201.